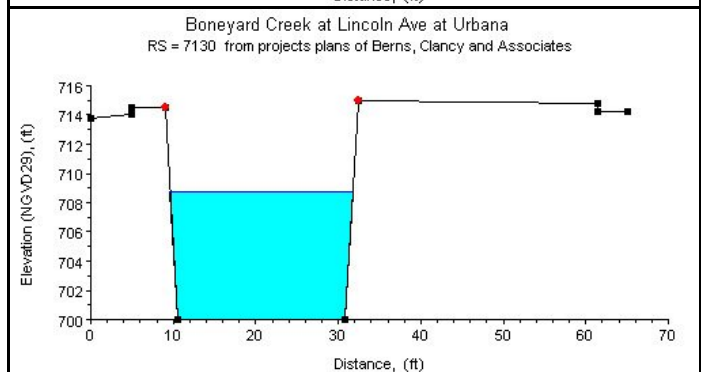
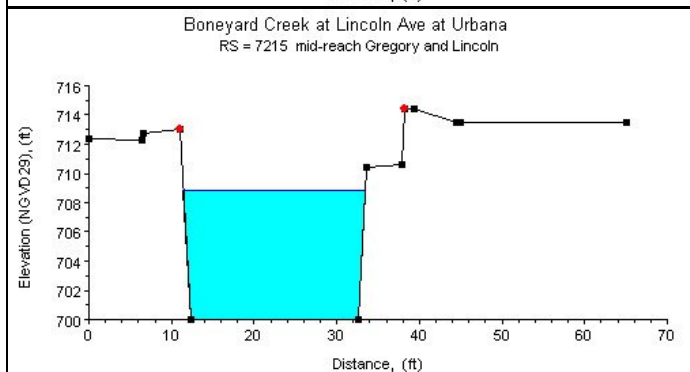
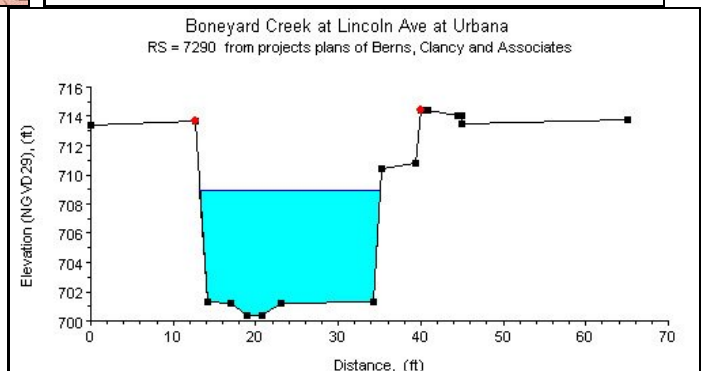
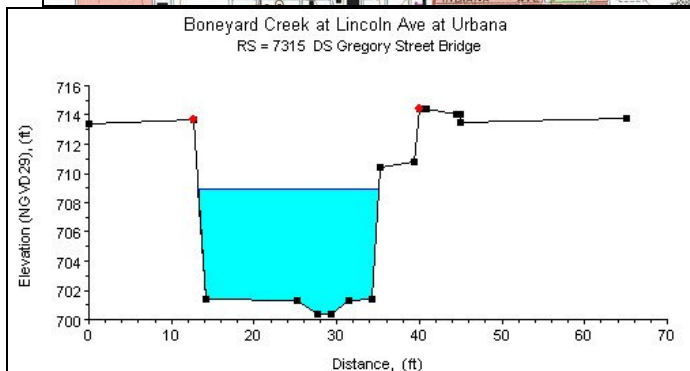
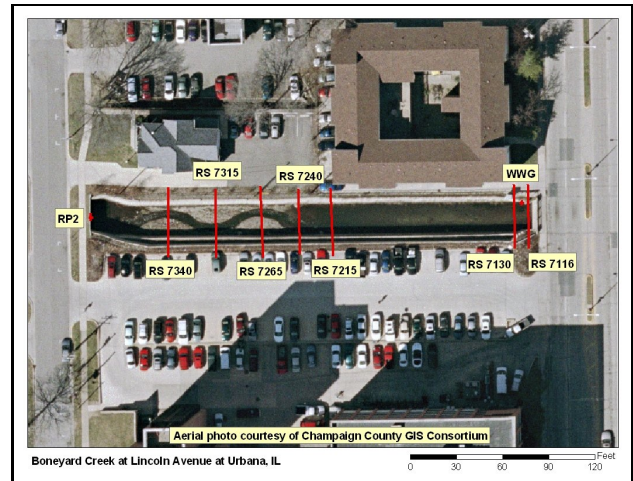
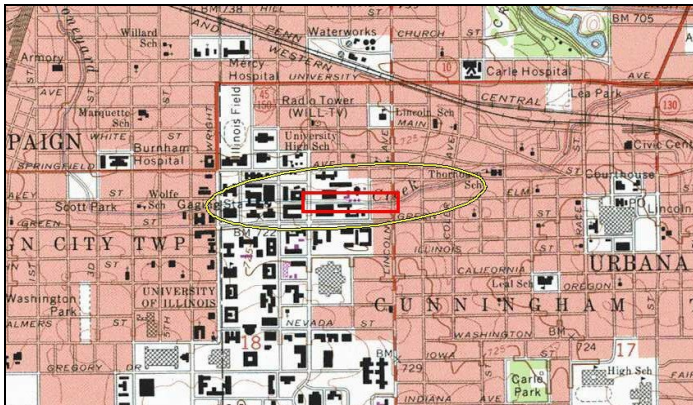


# Boneyard Creek at Lincoln Avenue at Urbana, IL



**Study Reach.**--The channel reach under consideration is constructed in an urban setting, as shown in quadrangle map on the top left. The study reach, approximately 300 ft long, is located from the downstream side of Gregory Street bridge to the upstream side of Lincoln Avenue bridge. Nine surveyed cross sections (surveyed by Berns, Clancy, and Associates, in July 2000) are available for describing the channel geometries in the study reach (see plots above). The channel alignment, approximate variations in channel width and bank conditions, and locations of cross sections are shown in the aerial photo on the top right.

**Gage Location.**--Lat 40°06' 41", long 88°13' 10", in NE1/4 NE1/4 sec.18, T.19N., R.9E., Champaign County, Hydrologic Unit 05120109, on left bank 17 ft upstream from Lincoln Avenue in Urbana, and at river mile 1.4. The USGS streamgage-station number is 03337100.

**Drainage Area.**--4.78 sq mi.

**Gage Datum and Elevations of Reference Points.**--Datum of the gage is 694.00 ft. Reference point RP-2 is a bolt in downstream face of Gregory St. bridge, elevation = 715.448 ft; a wire-weight-gage (WWG) is located on the left bank upstream from Lincoln Avenue bridge. All elevations are in NGVD 1929 convention.

**Stage, Discharge Measurements, and Computed n-Values.**--Water-surface elevations were measured from RP-2 and from the WWG before, during, and after the discharge measurement. Discharge measurements were made using either the conventional current-meter method or tethered boat acoustic Doppler current profiler (ADCP). When the ADCP was used, a series of bridge measurements were made, and the time for each section was recorded to the nearest minute. When possible, multiple discharge measurements were made during a rise and recession to provide data for calculating n-values over a range in stage. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-value at a particular stage.

Date of Observation	Discharge (ft <sup>3</sup> /s)	Average Cross Section Area (ft <sup>2</sup> )	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness <i>n</i>
3/26/2004	236.0	79.3	2.83	3.02	0.001550	0.045
7/9/2003	453.7	125.5	3.89	3.64	0.001400	0.043
7/9/2003	506.4	146.2	4.27	3.48	0.001081	0.041
6/26/2007	540.0	165.0	4.59	3.28	0.001319	0.052
7/9/2003	590.9	165.5	4.60	3.58	0.000844	0.037
7/9/2003	608.4	169.1	4.65	3.61	0.000878	0.038
6/26/2007	653.0	153.3	4.39	4.28	0.001554	0.042



03337100 Boneyard Creek at Lincoln in Urbana, IL  
Low flow, looking Downstream from Gregory St



03337100 Boneyard Creek at Lincoln in Urbana, IL  
Low flow, looking Downstream from Gregory St

06/10/05





03337100 Boneyard Creek at Lincoln at Urbana, IL  
 Low Flow, Looking Downstream from Gregory St

03/06/04



03337100 Boneyard Creek at Lincoln at Urbana, IL  
 Looking Downstream from Gregory St

07/09/03  
 $n = 0.034 - 0.037$



03337100 Boneyard Creek at Lincoln at Urbana, IL  
 Looking Downstream from Gregory St

07/09/03  
 $n = 0.034 - 0.037$



03337100 Boneyard Creek at Lincoln at Urbana, IL  
 Looking upstream from Lincoln Ave

07/12/06



03337100 Boneyard Creek at Lincoln at Urbana, IL  
 Looking Downstream from Gregory St

06/26/2007



03337100 Boneyard Creek at Lincoln at Urbana, IL  
 Looking Downstream from Gregory St

06/26/2007



**Description of Channel.**--This channel is constructed with cross sections in a rectangular shape in a uniform straight reach. The bed material consists of precast concrete revetment pavers with medium gravel infill. Medium and coarse gravel accumulates and migrates along the channel bed. A low-flow meander was constructed in a 60-ft long section starting at the downstream side of Gregory Street bridge at the upstream end of the reach. Aquatic weeds and thick algae grow in the channel bed during the warm months and in low-flow conditions. The bottom width of the channel is about 20 ft. The banks are constructed from modular concrete block retaining walls with one terrace on the right bank and the left bank nearly vertical. The banks are approximately 14 ft high and have a top width of about 22 ft.

**Floods.**--None

**Estimated n-Values using Cowan's Approach.**--0.027 - 0.039